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EXAMINER	
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4173	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/584,236	PROUST ET AL.	
	Examiner	Art Unit	
	KHALID ABDALLA	4173	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *31-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *31-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/26/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This application has been examined .Claims 31-48 are pending in this application

Information Disclosure Statement

2. The Examiner has considered the references listed on the Information Disclosure statement submitted on 06/26/2006 (see attached PTO-1449.

Drawings

3. The examiner contends that the drawings submitted on 06/26/2006 are acceptable for examination proceedings

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 43-45 are rejected under 35 U.S.C. 102(e) as being anticipated by Berthaud et al (US 20040090955 A1).

Regarding claim 43, Berthaud discloses a terminal comprising:

means for producing a datagram to be sent by the terminal the datagram (a method

and system, in an Internet Protocol (IP) network, for routing IP datagrams . See [0001] also An "IP routing table" in each router is used to forward datagrams between networks see [0016]) comprising an ordered field vector and a vector index field;
means for writing an initial reference into each field of the vector (Each router is configured at the beginning of the process with a distance vector table see [0021] therefore that inherent writing an initial reference into each field of the vector) of the datagram to be sent by the terminal; and
means for writing an initial value into the index field of the datagram to be sent by the terminal (One of the characteristic of the distance vector routing is that the distance is a static value pre-configured on each router interface see [0027]).

Regarding claim 44, Berthaud discloses The terminal, further comprising:
means for reading second references in fields of an additional vector contained in a datagram received by the terminal (Each router uses the information received from its neighbors to calculate its own distance vector table see [0023] that inherent reading second references in fields of an additional vector); and
means for storing the second references with communication session context data of the received datagram in a communication session context table of said terminal (The routes and networks advertisements are dynamically stored in the routing table of each router therefore that inherent storing the second references with communication session context data see [0034]) , wherein the initial reference written into each field of the vector (Each router is configured at the beginning of the process with a distance vector

table see [0021] therefore that inherent writing an initial reference into each field of the vector.)of the datagram to be sent by the terminal is one of said second references read in a field of the additional vector of the received datagram when the datagram to be sent belongs to the communication session of the received datagram (Each router uses the information received from its neighbors to calculate its own distance vector table see [0023] therefore inherently reading second references in fields of an additional vector).

Regarding claim 45, Berthaud discloses the terminal wherein the means for producing the datagram to be sent are such that the datagram (a method and system, in an Internet Protocol (IP) network, for routing IP datagrams. See [0001] also An "IP routing table" in each router is used to forward datagrams between networks see [0016]) to be sent further comprises an additional field vector, the terminal further comprising:

means for reading first references in fields of a vector contained in the received datagram (Each router in an inter network maintains the distance from itself to every known destination in a Distance Vector Table also the distances in the tables are computed from information provided by neighbor routers. Each router transmits its own Distance Vector Table across the shared network; see [0019])

means for storing said first references in the table of communication session contexts of said terminal with the communication session context data of the received datagram (The routes and networks advertisements are dynamically stored in the routing table of each router therefore that inherent storing the second references with communication

session context data see [0034]).; and

means for writing said first references into the fields of the additional vector of the datagram to be sent by the terminal when the datagram to be sent belongs to the communication session of the datagram received(Each router uses the information received from its neighbors to calculate its own distance vector table see [0023] that inherent reading second references in fields of an additional vector).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 31-42 and are rejected under 35 U.S.C. 103(a) as being unpatentable over Tappan (US 6473421 B1) in view of and La Porta et al (US 6763007 B1).

Regarding claim 31, Tappan discloses a method of marking a datagram (FIG .5 shows IP datagram tag and labeled see col:3 lines 33-41) transmitted in a communications network comprising routers interconnected (Internetwork communications based on operations of routers see col:1 lines 9-11) by transmission links from a datagram source terminal connected to a first router of the network to a datagram destination terminal connected to a second router of the network (referring to FIG.2 router 10 intends the packet to be received by a further router 30, so the link-layer header's destination-address field will contain the link-layer address of router 30 see coln1 lines 48-51), the

datagram comprising a vector formed of ordered fields each containing a reference, the datagram further comprising a vector index field, and each router having a table of references the method comprising the following steps executed when a router receives the datagram(when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see col:2 lines 28-35):

reading a value in the index field of the datagram;

reading the reference contained in the field of the vector of the datagram designated by the read index value (table lookup the interface through which to forward the cell. It also replaces that field's contents with a value indicated by the table as being the next switch's code see col: 4 lines 5-10).

if the table of the router does not contain the read reference, writing a reference selected in the table of the router into the field of the vector of the datagram designated by the read index value (Routers inform other routers of the host systems to which they can forward communications packets, and they employ such information obtained from other routers to populate their forwarding tables see col:2 lines 6-10 also when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see col: 2 lines 28-35).

Tappan does not discloses the read index value writing into the index field of the datagram a value equal to the read value incremented by one unit; and forwarding the datagram to a next router of the network.

However La Porta teaches the read index value writing into the index field of the datagram a value equal to the read value incremented by one unit; and forwarding the datagram to a next router of the network (The mobile device, having been handed off to a new base station, initiates a handoff path setup message having a sequence number field value incremented by one see col: 22 lines 63-66 also 'The metric field 320 is set to one by the base station initiating the refresh path setup message and sequentially incremented by each successive router receiving the message see col:15 lines 14-17). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the disclosure of Tappan and combine it with the teachings of La Porta in order to provide wireless access to packet-based networks by mobile devices.

Regarding claim 32, Note that Tappan discloses the method, wherein the references contained in the table of references of the router are associated with respective routes in the network. (When a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward

the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see col: 2 lines 28-35).

Regarding claim 33, Note that Tappan discloses the method, wherein the table of references of the router is a portion of a routing table of said router, said portion corresponding to a single destination prefix contained in the routing table (When a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see col: 2 lines 28-35).

Regarding claim 34, Note that La Porta teaches the method, wherein the datagram belongs to a flow of datagrams sent successively by the source terminal to the destination terminal, and wherein the read reference is identical to a reference written by said router at the time of forwarding an earlier datagram of said flow (The routing daemon then determines the interface on which the message is to be forwarded. This is performed by utilizing the routing table entry corresponding to the destination address field in the message. The message is then forwarded to a next hop router. If the address associated with the next hop router is the same as one of the interface

addresses of the current router or base station, then the path setup message has reached its final destination address see col: 32 lines 14-22).

Regarding claim 35, Note that Tappan modified by La Porta teaches the method, wherein the datagram belongs to a forward flow of datagrams sent successively by the source terminal to the destination terminal(La Porta : The routing daemon then determines the interface on which the message is to be forwarded. This is performed by utilizing the routing table entry corresponding to the destination address field in the message. The message is then forwarded to a next hop router. If the address associated with the next hop router is the same as one of the interface addresses of the current router or base station, then the path setup message has reached its final destination address see col: 32 lines 14-22), said forward flow relating to a communication session, and wherein said datagram further comprises an additional vector formed of fields (Tappan: table lookup the interface through which to forward the cell. It also replaces that field's contents with a value indicated by the table as being the next switch's code see col: 4 lines 5-10) that are intended to receive references written into the fields of a vector of a backward flow datagram relating to said communication session, sent by the terminal receiving forward flow datagrams and received by the terminal sending forward flow datagrams before sending said forward flow datagram (Tappan: When a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's

fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see col: 2 lines 28-35).

Regarding claim 36, Note that Tappan discloses The method of Claim 35, wherein initial references are written by the source terminal into the fields of the vector of said forward flow datagram (Tappan: A data packet may originate at a source node and subsequently "hop" from node to node along a logical data path until it reaches its destination. The network addresses defining the logical data path of a data flow see col: 1 lines 52-54).,
Also note that La Porta teaches initial references being respectively identical to references contained in fields of an additional vector of the backward flow datagram(The message is then forwarded to a next hop router. If the address associated with the next hop router is the same as one of the interface addresses of the current router or base station, then the path setup message has reached its final destination address see col: 32 lines 18-22).

Regarding claim 37, Note that Tappan discloses that the method of Claim 35, wherein said forward flow datagram further comprises a vector length field that is intended to receive the last value written into the index field of the backward flow datagram (a length field 524 and a value field 526. The type field 522 indicates what type of information is stored in the value field 526. The length field 524 identifies the

length, usually in octets, of the TLV 520. The value field 526 stores the specific value transported by the TLV see col: 11 lines 13-16 and FIG.5).

Regarding claim 38, Note that Tappan discloses a method of forwarding a datagram by a router of a communications network (Internetwork communications based on operations of routers see col:1 lines 9-11), the router having a table of references associated with respective routes between said router and a destination terminal of the datagram connected to the network (network is a geographically distributed collection of interconnected subnetworks, such as local area networks (LAN), that transport data between network nodes The network topology is defined by an arrangement of network nodes that communicate with one another, typically through one or more intermediate network nodes, such as routers and switches see col:1 lines 22-26). the forwarding method comprising the following steps:
on reception of the datagram by the router, reading a reference in the datagram; and looking up the read reference in the table of references of the router (each ABR(area border router) maintains a separate LSDB for each of its routing areas. In operation, network nodes in a routing area "flood" LSAs (link-state data base) to ensure that every node in that area populates its LSDB with the same set of routing and topology information see col: 5 lines 3-7).
if the table contains the read reference, forwarding the datagram along the route associated with the read reference,
if not, selecting a reference in the table and forwarding the datagram along the

route(when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see col:2 lines 28-35):associated with the selected reference; in which method the read reference was written
beforehand into the datagram using the marking method of Claim 31.

Regarding claim 39, Note that Tappan discloses the method, wherein the reference selected in the table of references of the router is also written into said datagram (when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see col:2 lines 28-35) using the marking method of Claim 1.

Regarding claim 40, Note that Tappan discloses The method of Claim 38, wherein the table of references is associated with a single destination prefix contained in a routing table of said router (prefixes may be aggregated as a single address prefix 128.52.10.0 /24 which contains both IP address ranges see col:2 lines 50-52).

Regarding claim 41, Note that Tappan discloses The method, comprising the following steps executed at the time of reception of the datagram by the router before looking up the read reference in the table of references of said router:
reading a destination address in the datagram; and selecting in the routing table of said router the longest destination prefix corresponding to the read destination address (Two or more address prefixes may be aggregated if they specify contiguous ranges of network addresses or if one prefix's range of addresses is a superset of the other prefixes see col:2 lines 40-42)., the table of references of said router in which the reference read in the datagram is then looked up being associated with the selected destination prefix (For example, consider the address prefixes 128.52.10.0 /24 and 128.52.10.5 /30. Since the prefix 128.52.10.0 /24 includes every IP address in the subnet work described by the prefix 128.52.10.5 /30, the two prefixes may be aggregated as a single prefix 128.52.10.0 /24 see col:2 lines 43-47).

Regarding claim 42 note that, La Porta teaches the method, wherein the table of references further comprises, for each reference of said table, a load value assigned to the route associated with said reference, and wherein the selected reference corresponds to a minimum load value of the routes associated with references contained in said table of references. (By periodically refreshing the host based routing entries, response to domain routing changes (other than those necessitated by mobile device handoffs) are also accommodated. Non-handoff subnet changes may be initiated

by a number of events, including but not limited to, faults due to broken links, node congestion, traffic control, etc see col: 13 lines 47-53).

8. Claim 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berthaud et al (US 20040090955 A1) in view of and La Porta et al (US 6763007 B1).

Regarding claim 46, Berthaud discloses a router comprising: means for reading a value in a vector index field of a datagram received by the router datagram (The distances in the tables are computed from information provided by neighbor routers. Each router transmits its own Distance Vector Table across the shared network; see [0019]);means for reading a reference contained in a vector field of said datagram designated by the read index value;
means for storing a table of references (The routes and networks advertisements are dynamically stored in the routing table of each router therefore that inherent storing the second references with communication session context data see [0034]); means for associating references in the table with routes; means for looking up a read reference in the table of references of said router (Routers are able to select the best transmission path between networks see [0015]also This outgoing datagram is subject to the IP routing algorithm of the router, which selects the next hop for the datagram. See [0016]), adapted to command forwarding of said datagram along the route associated with the read reference if the table of references contains the read reference;
means for selecting a reference in the table of references, adapted to be activated if the table of references does not contain the read reference and to command forwarding of said datagram along the route associated with the selected reference (Routers are able

to select the best transmission path between networks see [0015]also This outgoing datagram is subject to the IP routing algorithm of the router, which selects the next hop for the datagram. See [0016] also selecting among the one or a plurality of next hop routers (NH.sub.j) that can potentially route the IP datagram, a next hop router (NH). This next hop router is generally chosen according to the associated cost or distance (lowest cost or shortest distance)see [0198]) ; and

Berthaud does not discloses means for writing a value equal to the read value incremented by one unit into the index field of said datagram. However La Porta teaches means for writing a value equal to the read value incremented by one unit into the index field of said datagram (The mobile device, having been handed off to a new base station, initiates a handoff path setup message having a sequence number field value incremented by one see col: 22 lines 63-66 also 'The metric field 320 is set to one by the base station initiating the refresh path setup message and sequentially incremented by each successive router receiving the message see col:15 lines 14-17). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to made use of the disclosure of Tappan and combine it with the teachings of La Porta in order to provide wireless access to packet-based networks by mobile devices.

Regarding claim 47, note that Berthaud discloses the router of Claim 46; further comprising means for writing the selected reference into the vector field of said datagram designated by the read index value (selecting among the one or a plurality of

next hop routers (NH. Sub .j) that can potentially route the IP datagram, a next hop router (NH). This next hop router is generally chosen according to the associated cost or distance (lowest cost or shortest distance) see [0198] also The routes and networks advertisements are dynamically stored in the routing table of each router therefore that inherent storing the second references with communication session context data see [0034]).

9. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berthaud et al (US 20040090955 A1) in view of and La Porta et al (US 6763007 B1) as applied to claim 46 above and further in view of Tappan .

Regarding claim 48, Berthaud and La Porta disclose the router of Claim 46,with wherein the association means are included in means for calculating a routing table (Berthaud for example: an "IP routing table" in each router is used to forward datagrams between networks. A basic IP routing table comprises information about the locally attached networks and the IP addresses of other routers located on these networks, plus the networks to which they attach see [0016]) Of said router, said calculation means belonging to a control unit of said router (Berthaud for example: Each router uses the information received from its neighbors to calculate its own distance vector table see [0023]);
Also La Porta discloses the table of references of said router comprising, for each reference in said table, a load value assigned to the route associated with said reference; and the reference selection means being adapted to select the reference for

which the route corresponds to a minimum load value (By periodically refreshing the host based routing entries, response to domain routing changes (other than those necessitated by mobile device handoffs) are also accommodated. Non-handoff subnet changes may be initiated by a number of events, including but not limited to, faults due to broken links, node congestion, traffic control, etc see col: 13 lines 47-53).

Berthaud and La Porta do not explicitly discloses the association means being further adapted to associate a table of references with a single destination prefix contained in the routing table of said router.

However Tappan teaches the association means being further adapted to associate a table of references with a single destination prefix contained in the routing table of said router(prefixes may be aggregated as a single address prefix 128.52.10.0 /24 which contains both IP address ranges see col:2 lines 50-52).

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to made use of the disclosure of Berthaud and La Porta and combine it with the teachings of Tappan in order to provide Hierarchical label switching across multiple OSPF domains.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Servel et al et al (US 4939718 A) Routing method and packet switching networks having a distance indicator for routing.

Wilford et al (US 6687247 B1) Architecture for high speed class of service enabled linecard .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHALID ABDALLA whose telephone number is (571)270-7526. The examiner can normally be reached on MONDAY THROUGH FRIDAY 7 AM TO 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JINHEE LEE can be reached on 571-272-1977. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. A./
Examiner, Art Unit 4173

/Jinhee J Lee/
Supervisory Patent Examiner, Art

Unit 4173